

1/7

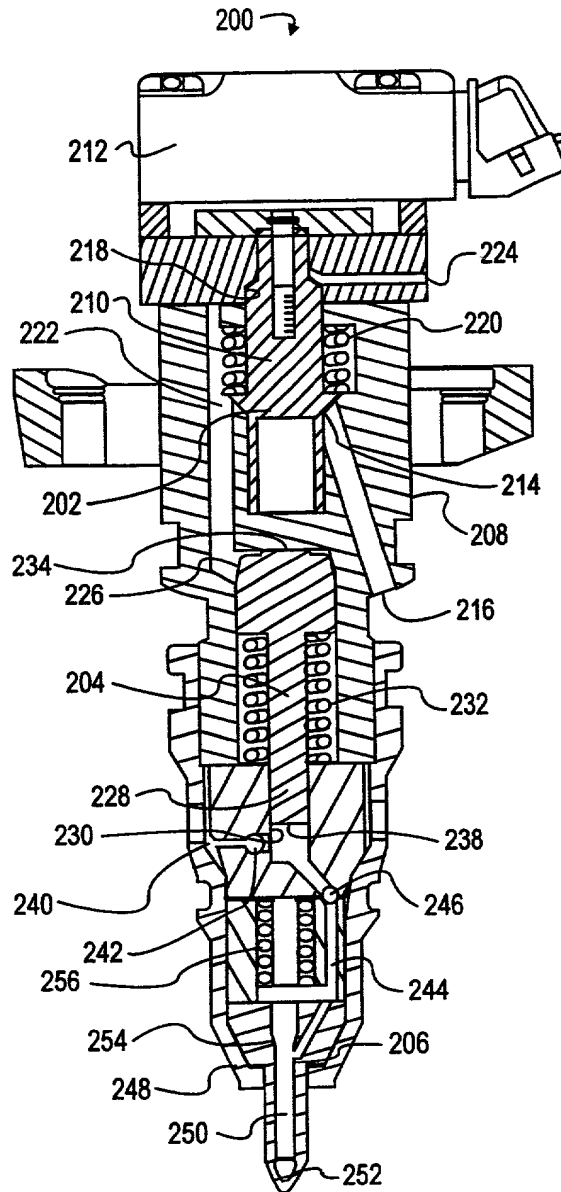


FIG. 1
PRIOR ART

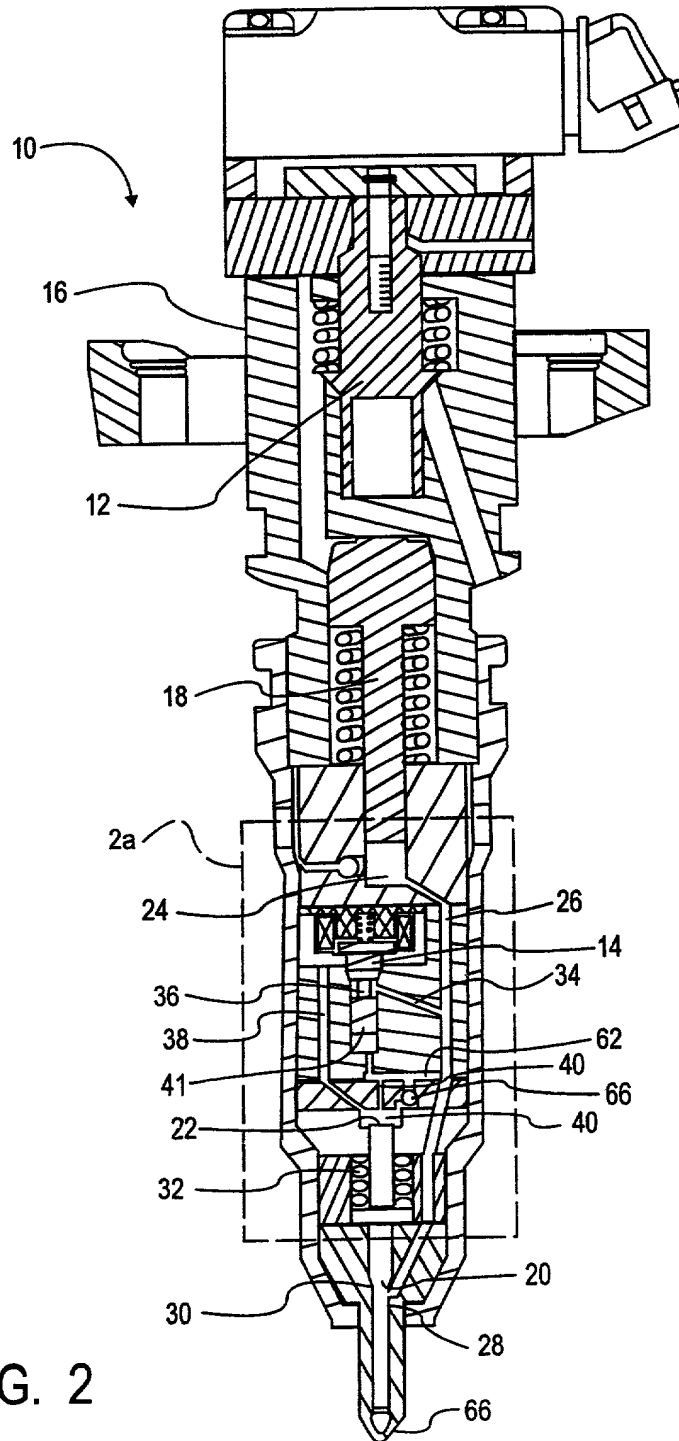


FIG. 2

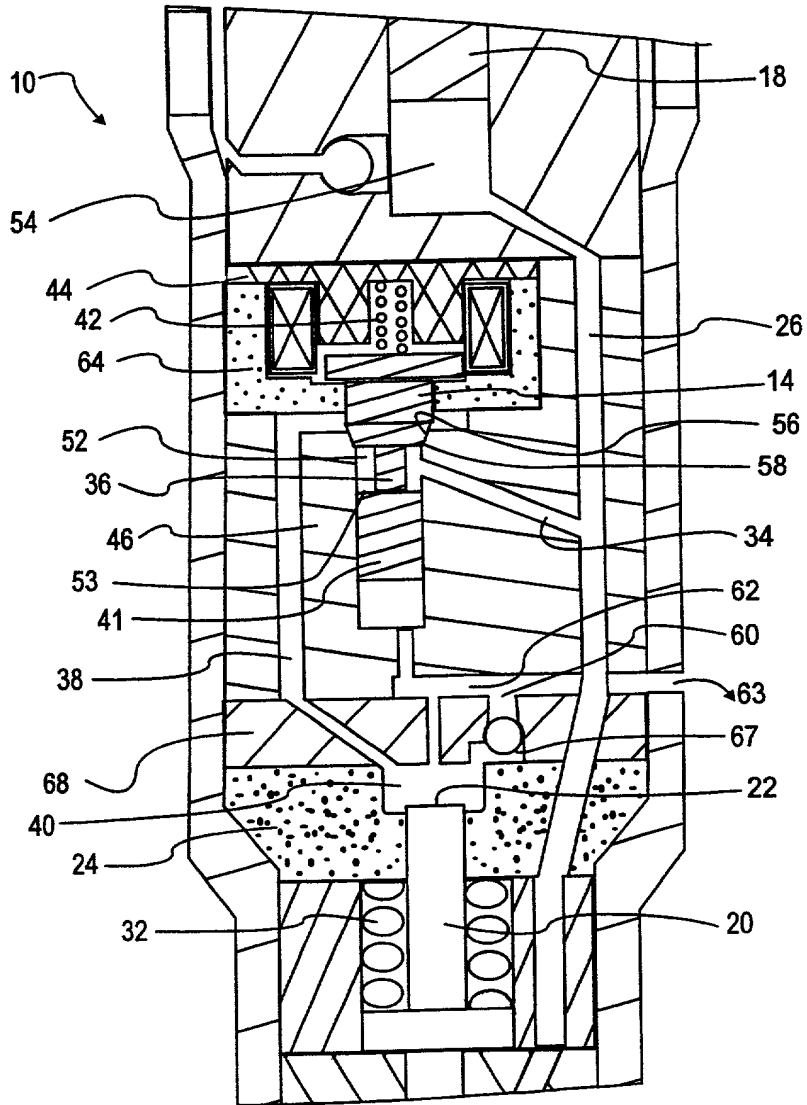


FIG. 2a

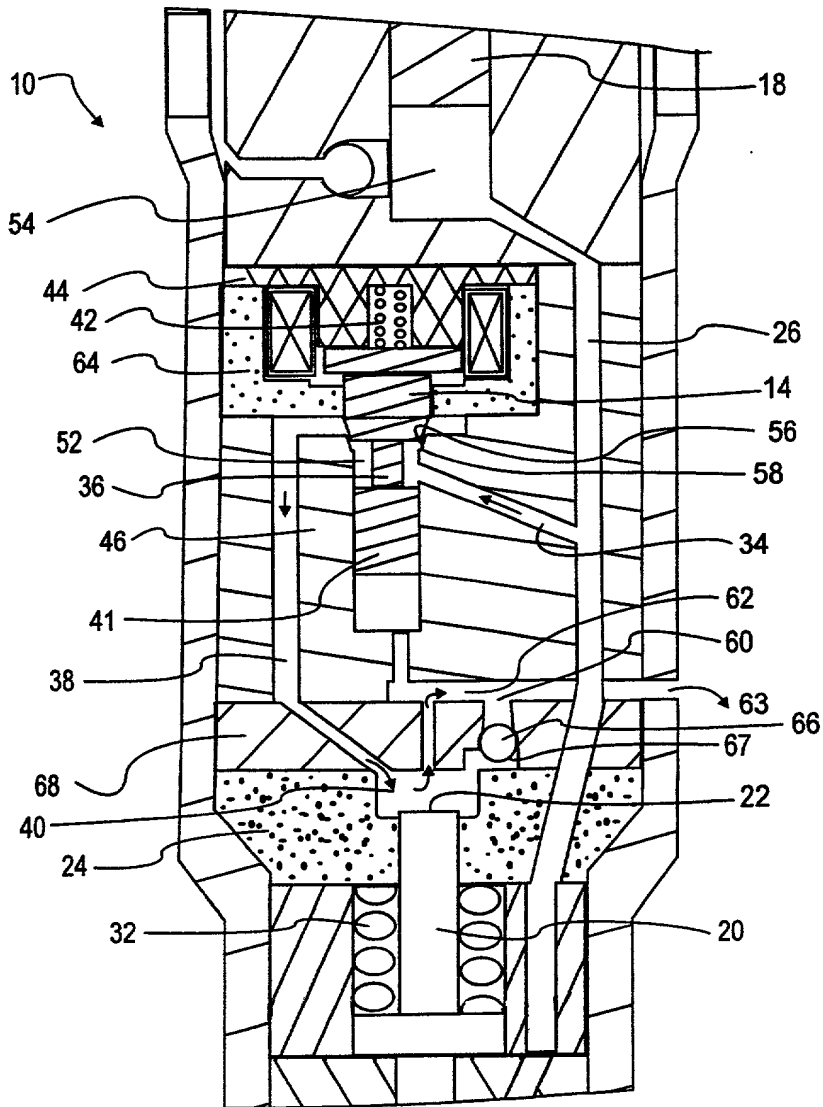


FIG. 2b

FIG. 3

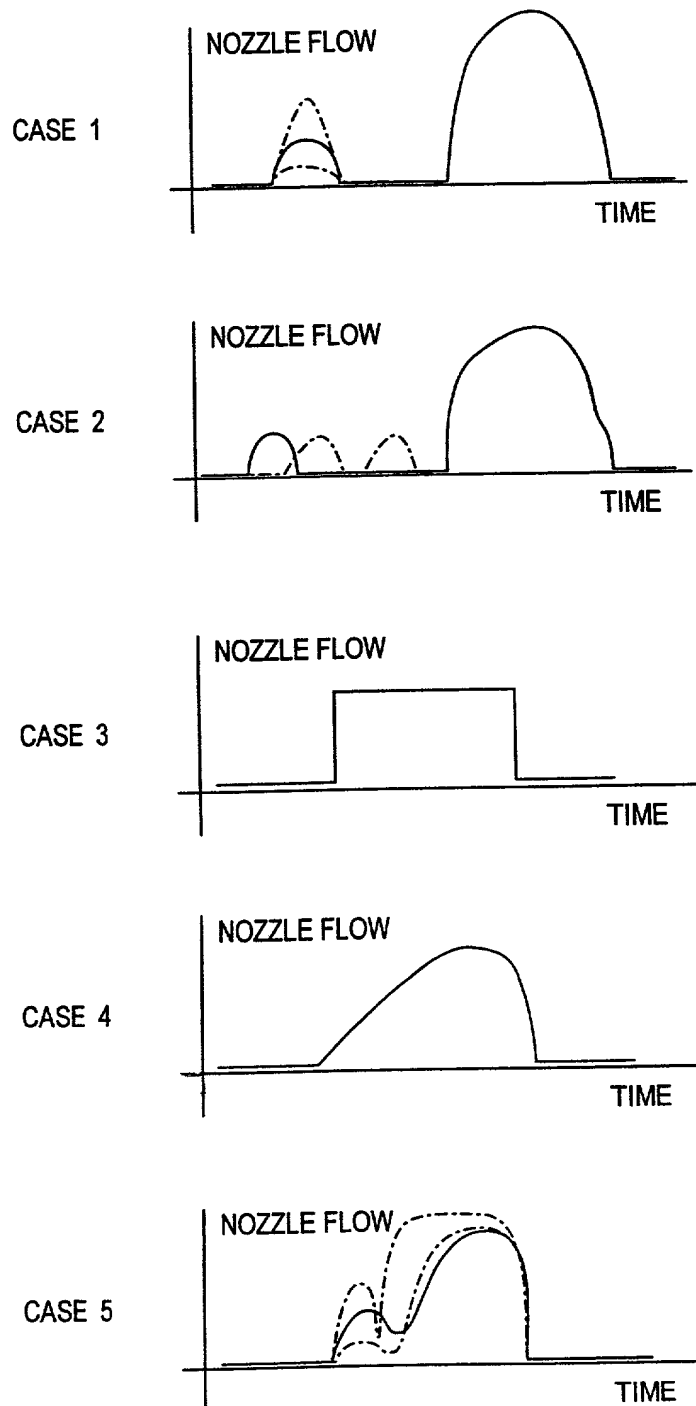


FIG. 5

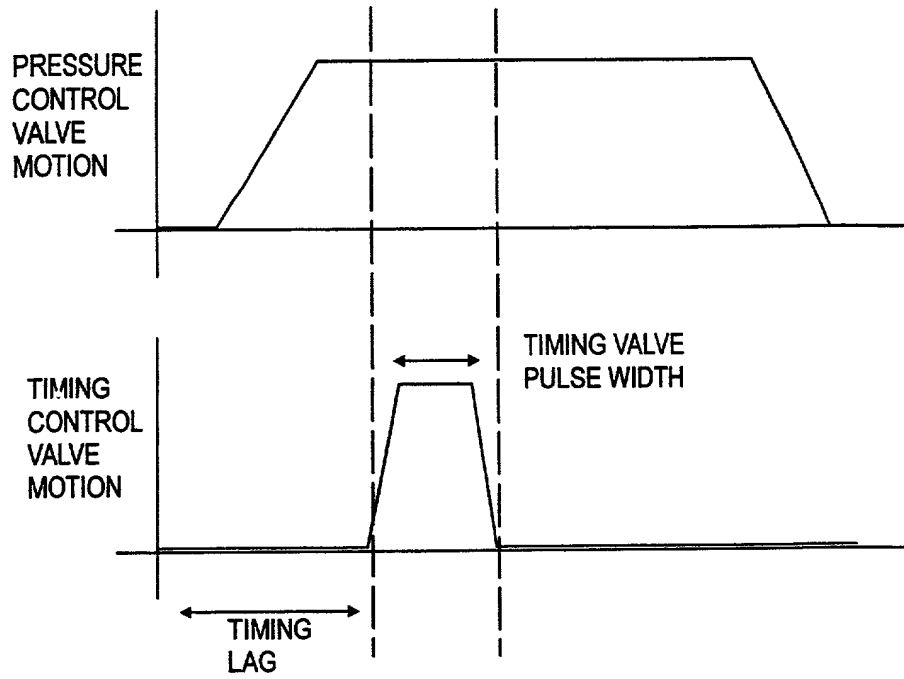
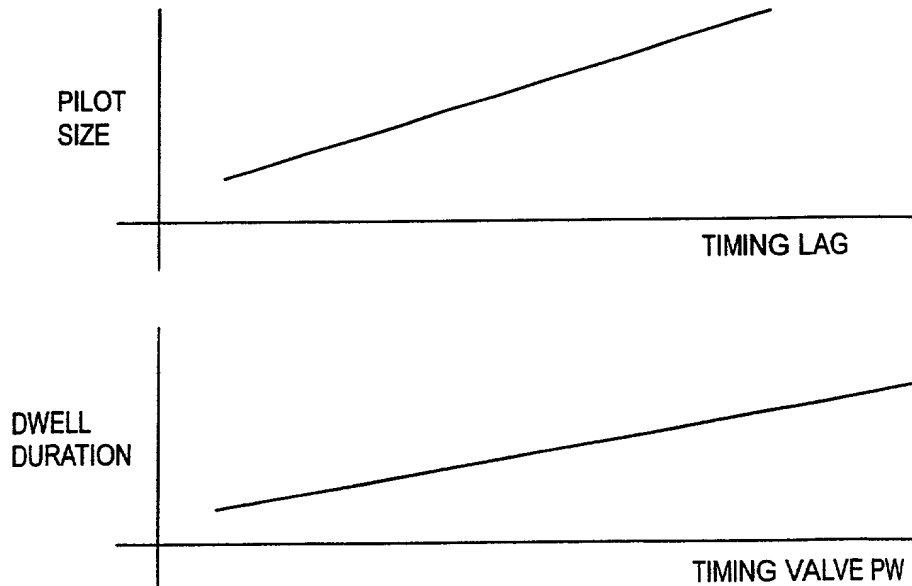


FIG. 6



Piezo Controlled Direct Needle Actuation

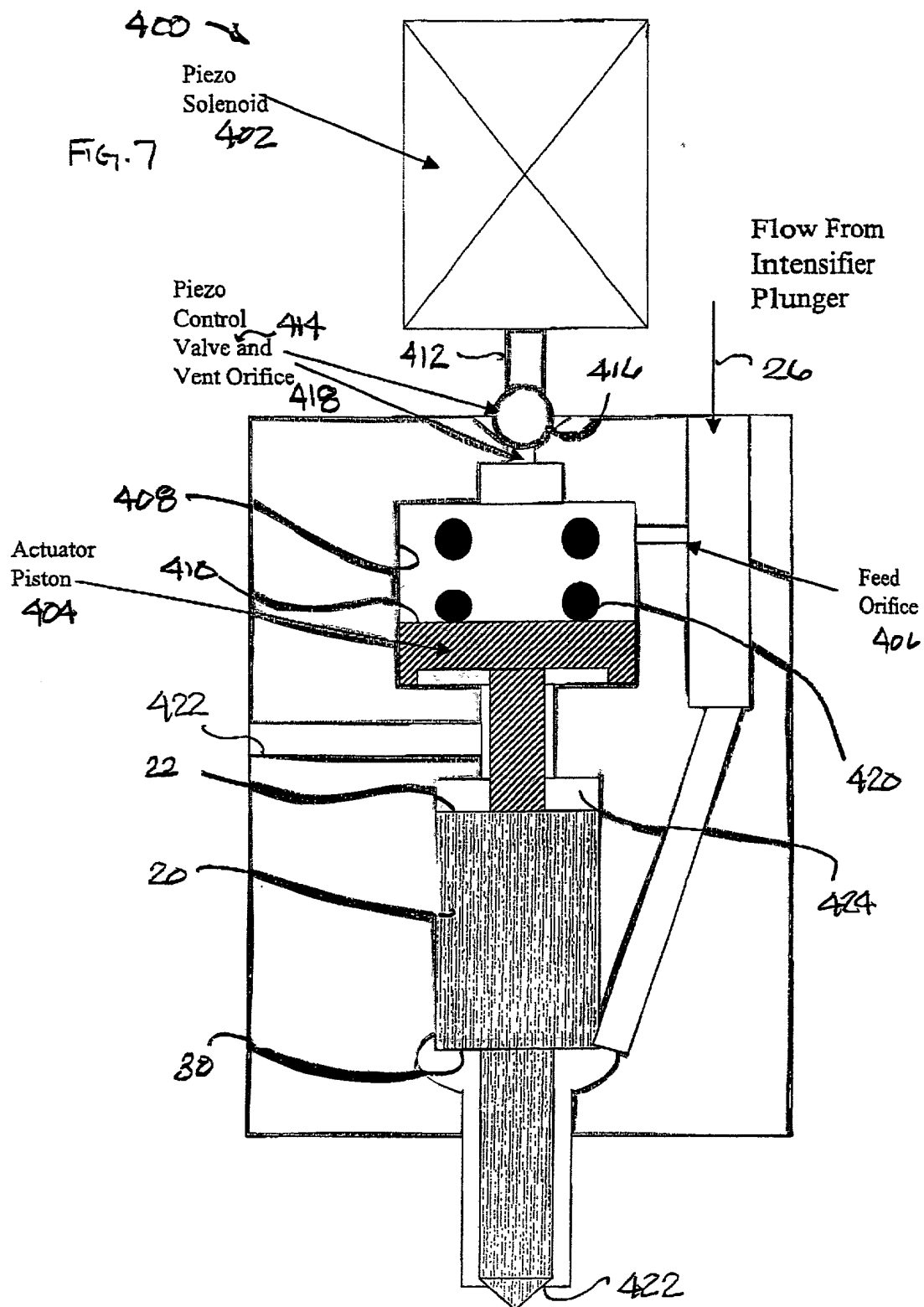
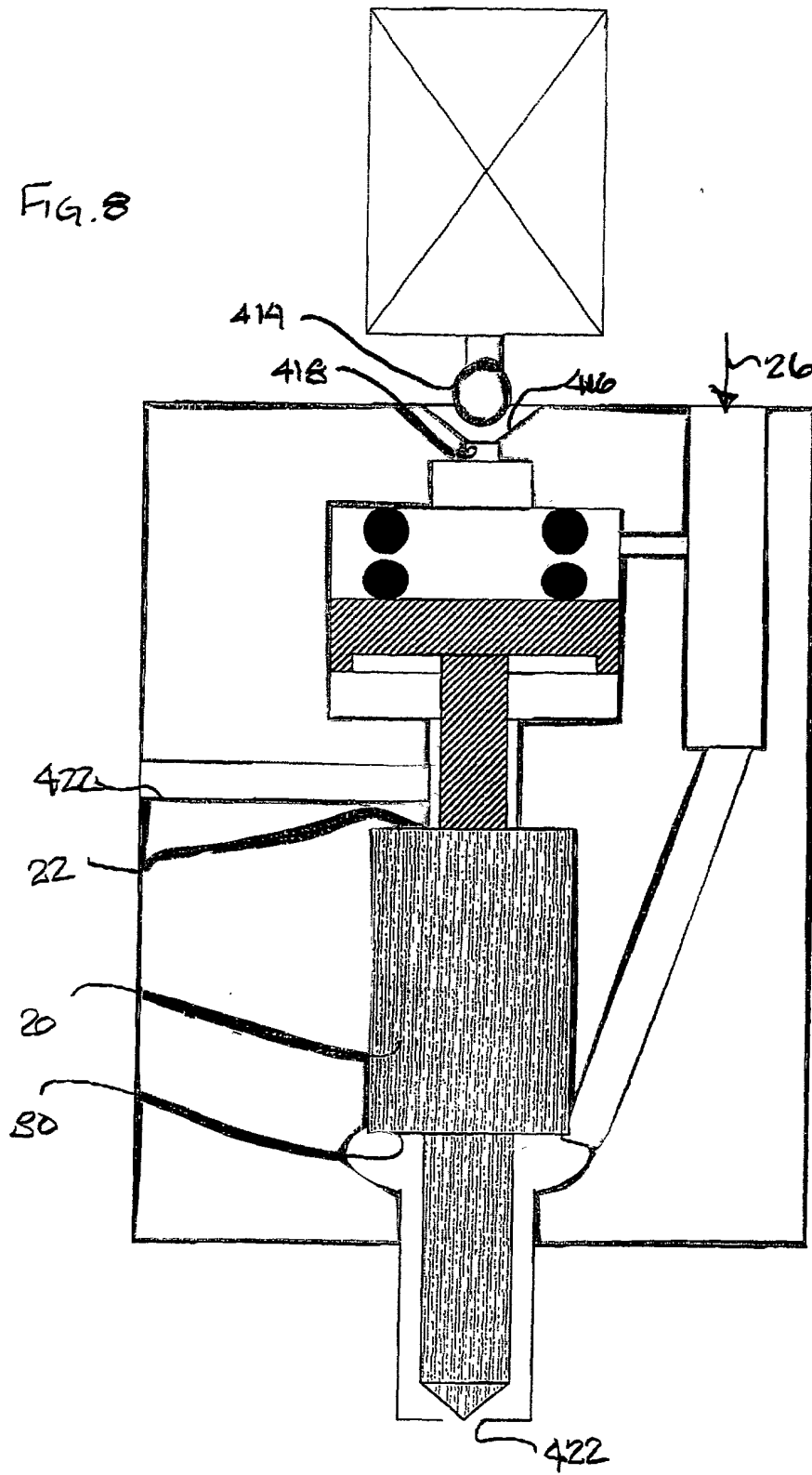
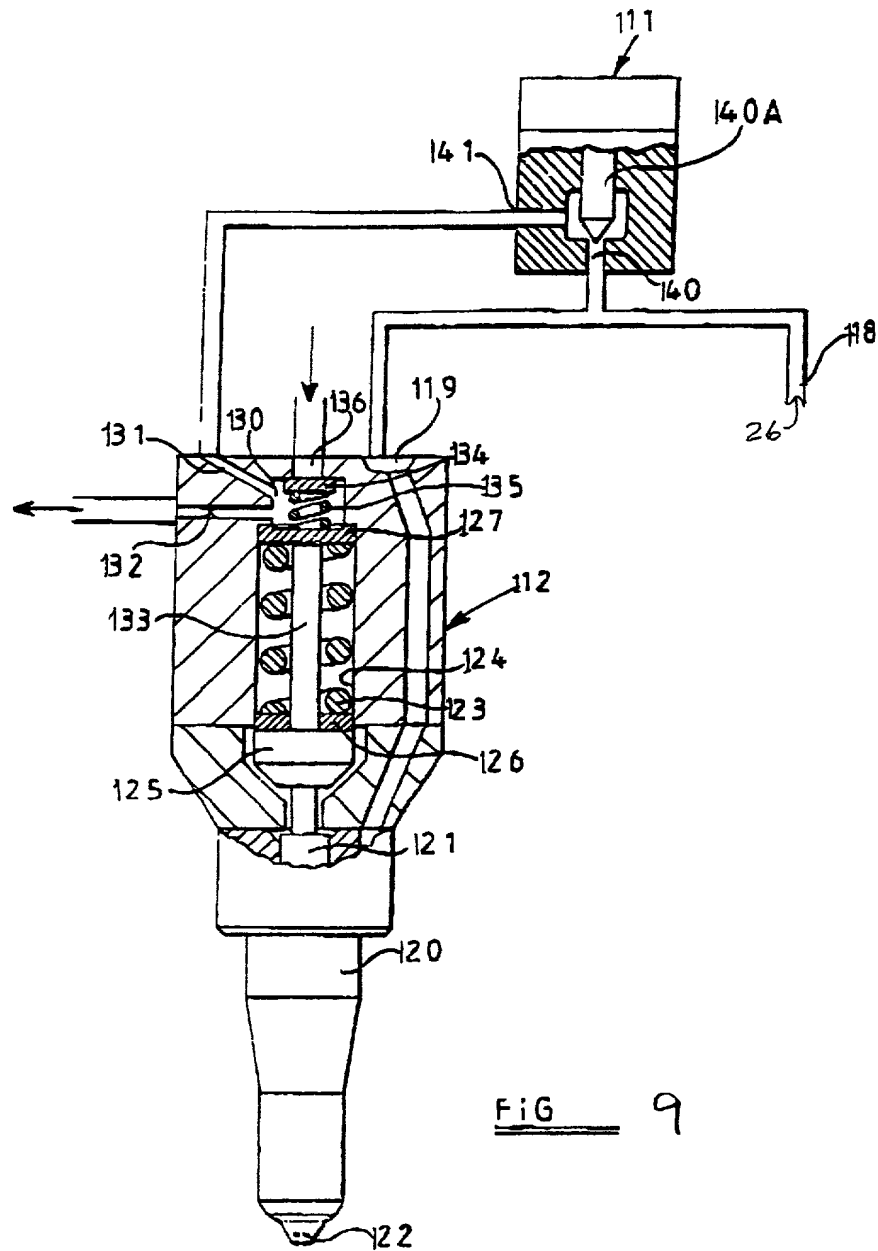


FIG. 8





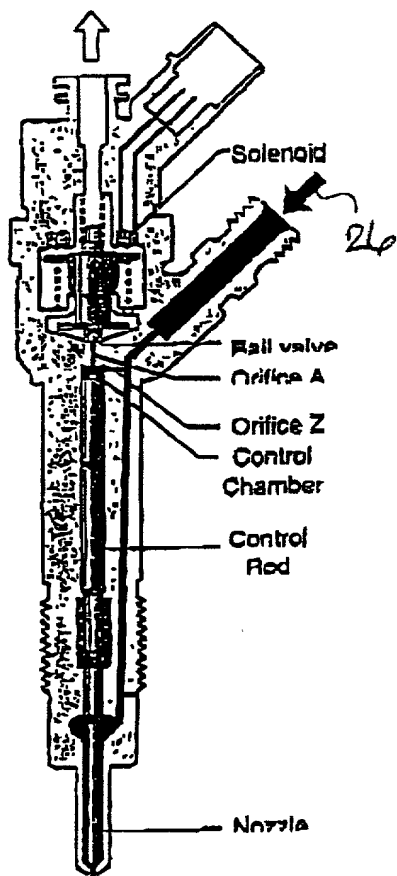


Fig. 10a

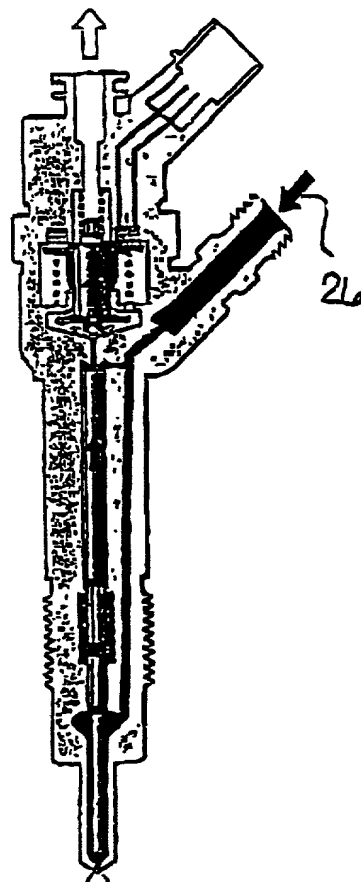


Fig. 10b